

Preliminary DRAFT North Lake Washington Chinook Population - Tier 2 - Initial Habitat Project List
Includes Potential Restoration and Protection Projects by Reach.
Little Bear Creek Subarea Reaches 1-12 Plus Great Dane Creek Reaches 1-2

Reach 1: Little Bear from mouth to 132nd Avenue NE Crossing (City of Woodinville)

Restoration

Technical Hypothesis: Mouth to 522 has greatest potential for restoration. Reduce sedimentation, increase pools, add LWD, increase channel connectivity, reduce bank armoring and restore riparian vegetation.

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
N400	1	1	new	Plant Riparian Vegetation: Plant riparian vegetation where possible in Reach 1, particularly in area where there is some existing vegetation; consider options for artificial shading of reach given how constrained opportunities are in reach.	Y		Reach 1 is heavily armored, very constrained with vertical walls and very little room for riparian vegetation.	M	H

Protection

Technical Hypothesis: Protect forest cover and wetlands.

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
	1	7			No projects are identified at this time.					

Reach 2: Little Bear from 132nd Avenue NE (City of Woodinville) to Hwy 522 Crossing

Restoration

Technical Hypothesis: Mouth to 522 has greatest potential for restoration. Reduce sedimentation, increase pools, add LWD, increase channel connectivity, reduce bank armoring and restore riparian vegetation.

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
N401	2	1	1a	Fish Passage Benefiting Chinook: 132nd Avenue NE, RM .45, City of Woodinville; is a low flow blockage.	Y	\$100,000	Permits obtained. Was funded, but Woodinville unable to reach agreement with private landowner so funding reallocated to 134th Ave NE culvert. However there is a new, willing property owner, so the feasibility has greatly increased.	H	H
N402	2	1	1b	Fish Passage Benefiting Chinook: 134th Avenue NE (three cement pipes, broken), RM 0.5, City of Woodinville; low flow blockage.	Y	\$200,000	Project funded. Construction expected 2005.	H	H
N403	2	1	new	Restore Riparian Area in Reach 2: Restore riparian vegetation up to 522 and add LWD.	Y			H	H

N404	2	1	new	Add Water Quality and Retention/Detention Facilities: Construct water quality treatment and retention/detention stormwater facilities for 522 at 195th as part of road widening project. Do in way that protects the creek corridor.	Y			H	H
N405	2	1	new	Add Large Woody Debris at Downstream End Reach 2: Use bioengineering techniques using large woody debris to stabilize bank near existing restaurant as alternative to bank armoring.	Y		Restaurant owner concerned about bank erosion and willing to use bioengineering techniques. There is a concern about not having lwd block downstream culvert. Will need to be considered in design.	M	H

Protection**Technical Hypothesis:** *Protect forest cover and wetlands.*

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
N406	2	5			Protect Riparian Area in Reach 2: Area is partially in public ownership.	Y		Parcel No. 9517100250 just east of 134th Avenue NE is owned by the City and Parcel No. 9517100220 just west of 134th Avenue NE is owned by the WSDOT. LBC also meanders in and out of WSDOT right of way near the SR 522/NE 195th Street ramps.	H	H

Reach 3: Little Bear from Hwy 522 Crossing to confluence with Rowlin Creek**Restoration****Technical Hypothesis:** *Reduce sedimentation, increase pools, add LWD, increase channel connectivity, reduce bank armoring and restore riparian vegetation.*

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
N407	3	2	1c	Fish Passage Benefiting Chinook: NE 195th Street, degraded vortex weir, RM 1.8, City of Woodinville; low flow barrier.	Y	\$80,000		H	H/M
N408	3	2	new	Add Large Woody Debris in Reach 3: From 195th to house, reach is publically owned. Add large woody debris, remove invasive plants and underplant with conifers.	Y			H	H

Protection**Technical Hypothesis:** *Protect forest cover and wetlands.*

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
	3	2			No projects are identified at this time.					

Reach 4: Little Bear from confluence with Rowllins Creek to begin industrial reach**Restoration****Technical Hypothesis:** *Reduce sedimentation, increase pools, add LWD, increase channel connectivity, reduce bank armoring and restore riparian vegetation.*

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
N409	4	2	new	Add Large Woody Debris in Reach 4: Add large woody debris in this privately owned reach.	Y		Reach is forested, mostly glide habitat. Culvert at 205th could be an obstruction. Need to address in project design.	H	L

Protection**Technical Hypothesis:** *Protect forest cover and wetlands.*

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
N410	4	3		new	Protect Riparian Wetland adjacent to Industrial Park: Protect riparian wetland adjacent to industrial park, east of 58th, through conservation easement or acquisition.	Y		Area proposed for development/possible rezone.	H	M

Reach 5: Little Bear from begin industrial reach (Alpine Rocky Industrial) to confluence Howell Creek (top of industrial area)**Restoration****Technical Hypothesis:** *Reduce fine sediment inputs, add LWD, restore riparian conditions, reduce channel confinement.*

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
N411	5	2	new	Creek Restoration at Alpine Rockeries: Snohomish County project to work with Alpine Rockeries to restore riparian vegetation, add large woody debris and potentially reconfigure stream channel on 800 ft. of stream.	Y		Construction to start in 2005. Partially funded. Concern about low IBI scores in this reach.	H	H

N412	5	2	new	Improve Water Quality in Reach 5: Snohomish County to continue to work with business owners in reach 5 of Little Bear Creek and on Howell Creek to use BMPs to improve water quality.	Y		Concern about low IBI scores in this reach.	H	H
------	---	---	-----	--	---	--	---	---	---

Protection**Technical Hypothesis:** *Protect forest cover and wetlands.*

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
	5	5			No projects are identified at this time.					

Reach 6: Little Bear from confluence Howell Creek (top of industrial area) to Canyon Park Culvert (228th) (Brightwater site)**Restoration****Technical Hypothesis:** *Reduce sedimentation, increase pools, add LWD, increase channel connectivity, reduce bank armoring and restore riparian vegetation.*

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
N413	6	2	new	Flood Buyout and Restoration: At downstream end of Reach 6, buyout frequently flooded home, add large woody debris and restore riparian vegetation.	Y		Willing landowner.	H	M

Protection**Technical Hypothesis:** *Protect forest cover and wetlands.*

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
	6	6			No projects are identified at this time.					

Reach 7: Little Bear from Canyon Park Culvert (228th) (upstream end of potential Brightwater site) to confluence with Cutthroat Creek (RB trib)**Restoration****Technical Hypothesis:** *Reduce sedimentation, increase pools, add LWD, increase channel connectivity, reduce bank armoring and restore riparian vegetation.*

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
N414	7	3	new	Work with Landowners to Restore Riparian Area: most of Reach 7 is privately owned, work with landowners to restore riparian vegetation and add large woody debris.	Y			H	M

N415	7	3	new	Floodplain Restoration Adjacent to Route 9: Acquire conservation easements on property where Little Bear Creek is close to Route 9 and conduct floodplain restoration to remeander creek in its natural floodplain.	Y		Maybe could be done as part of Route 9 widening.	H	H/M
N416	7	3	2b	Fish Passage Barrier Low in Cutthroat Creek: Improve fish passage at privately owned barrier in lower reach of Cutthroat Creek. May benefit juvenile Chinook (not documented).	Y			M/L	L

Protection**Technical Hypothesis:** *Protect forest cover and wetlands.*

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
N417	7	4		new	Protect Undeveloped Forested Parcels: Protect forested, undeveloped parcels in Reach 7 west of Little Bear Creek. Includes large wetland complex and groundwater sources.	Y		Issue with sediment source on property and possible clearing and grading violations.	H	M

Reach 8: Little Bear from confluence with Cutthroat Creek (LB trib) to confluence with Great Dane Creek (LB trib)**Restoration****Technical Hypothesis:** *Reduce sedimentation, increase pools, add LWD, increase channel connectivity, reduce bank armoring and restore riparian vegetation.*

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
N418	8	3	new	Restore Riparian Area in Reach 8: Work with private property owners to add large woody debris and restore riparian vegetation in Reach 8.	Y		May have unwilling land owner.	H	M/L

Protection**Technical Hypothesis:** *Protect forest cover and wetlands.*

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
N419	8	4		new	Protect Forest Cover in Reach 8: Seek conservation easements on undeveloped forested parcels in reach to protect existing forest cover.	Y			H	M/L

Reach 9: Little Bear from confluence with Great Dane Creek (LB trib) to Little Bear Rd culvert**Restoration****Technical Hypothesis:** *Reduce sedimentation, increase pools, add LWD, increase channel connectivity, reduce bank armoring and restore riparian vegetation.*

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
N420	9	4	new	Fish Passage: Replace failing culvert of creosote logs under SR 524. Is a water quality problem.	Y			M/L	M

Protection**Technical Hypothesis:** *Protect forest cover and wetlands.*

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
N421	9	3		3c	Forest Cover Protection: Maltby Road property, five parcels totaling 35 acres of mature second-growth upland forest, without critical areas protection.	Y				
N422	9	3		new	Forest Cover, Wetland Protection: Protect large, undeveloped forested wetland on both Little Bear and Great Dane Creeks. Approximately 100 acres including 10 parcels. Also listed under Great Dane Creek Reach 1.	Y		For sale. Potential WDOT mitigation funds.	H	H

Reach 10: Little Bear from Little Bear Rd culvert to 51st St culvert**Restoration****Technical Hypothesis:** *Reduce sedimentation, increase pools, add LWD, increase channel connectivity, reduce bank armoring and restore riparian vegetation.*

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
N423	10	4	1e	Fish Passage: 51st Ave. NE, RM 6.5, Snohomish County Public Works; two partial fish barriers at high flows.	Y			M/L	H

Protection**Technical Hypothesis:** *Protect forest cover and wetlands.*

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
N424	10	1		new	Protect Riparian Wetland in Reach 10: Protect undeveloped, forested wetlands (second growth forest) in reach covering approximately 110 acres and 10 parcels owned by two landowners. Enhance with large woody debris.	Y			H	H

Reach 11: Little Bear from 51st St culvert to 180th SE Culvert**Restoration****Technical Hypothesis:** *Reduce sedimentation, increase pools, add LWD, increase channel connectivity, reduce bank armoring and restore riparian vegetation.*

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Fits with Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
N425	11	6	8a	Increase Channel Complexity and Floodplain Connectivity - Enhance large woody debris recruitment and frequency between 180th St. SE and Maltby Road - a stream segment dominated by mixed forest riparian conditions and high canopy cover but lacking an instream abundance of large woody debris.	Y			H	H/M
N426	11	6	1f	Fish Passage Benefiting Chinook: 180th Street SE, RM 7.2, Snohomish County Public Works.	Y			H/M	H

Protection**Technical Hypothesis:** *Protect forest cover and wetlands.*

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
N427	11	1		3a	Little Bear Creek Headwater Forest: protect 88 acres of mature second-growth forest on right bank of Little Bear Creek. Largest contiguous forested property remaining in Little Bear watershed. Includes 5 parcels.	Y		Near urban growth line. Expensive.	H	H

Reach 12:**Restoration**

Technical Hypothesis: *Reduce sedimentation, increase pools, add LWD, increase channel connectivity, reduce bank armoring and restore riparian vegetation.*

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
N428	12	6	9	Stormwater Improvements at 156th Street SE: Mitigate heated stormwater effluent at 156th Street SE. Retrofit retention/detention facilities and Silver Fir development stormwater system to cool water and augment base stream flows.	Y			H	L

Protection

Technical Hypothesis: *Protect forest cover and wetlands.*

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Fits with Tech. Hypoth.	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
N429	12	2		3b, 3e, 3f	Forest Cover Protection: Protect forested, headwater wetlands from corner of 51st and 180th upstream approximately 2 miles along Little Bear Creek through conservation easements and acquisition. Includes three wetland complexes totaling over 200 acres: 4 parcels along 180th St. on mainstem; ~7 parcels along Trout Stream from 180th to Interurban Blvd.; and 5 parcels north of 164th Street to 156th Street.	Y		Benefits all of Little Bear Creek reaches for flow and cool temperatures. More feasible if funds available soon.	H+	H/M

Great Dane Creek**Great Dane 1: Great Dane Creek from mouth to SR 524 crossing****Restoration**

Technical Hypothesis: *Reduce sedimentation, increase pools, add LWD, increase channel connectivity, reduce bank armoring and restore riparian vegetation.*

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
	GD1	5		No projects are identified at this time.					

Protection**Technical Hypothesis:** *Protect forest cover and wetlands.*

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
N430	GD1	3		new	Forest Cover, Wetland Protection: Protect large, undeveloped forested wetland on both Little Bear and Great Dane Creeks. Approximately 100 acres including 10 parcels. Also listed under Reach 9.	Y		For sale. Potential WDOT mitigation funds.	H	H

Great Dane Creek SR 524 crossing**Restoration****Technical Hypothesis:** *Reduce sedimentation, increase pools, add LWD, increase channel connectivity, reduce bank armoring and restore riparian vegetation.*

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
	GDane R 1	5	1h	No projects are identified at this time.	Y				

Protection**Technical Hypothesis:** *Protect forest cover and wetlands.*

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
	GDane R 1				No projects are identified at this time.					

Great Dane 2: Great Dane Creek from SR 524 crossing to upper extent coho potential (0.25 miles)**Restoration****Technical Hypothesis:** *Reduce sedimentation, increase pools, add LWD, increase channel connectivity, reduce bank armoring and restore riparian vegetation.*

Project #	Reach #	Reach Restor. Benefit Rank	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
	GD2	5		No projects are identified at this time.					

Protection**Technical Hypothesis:** *Protect forest cover and wetlands.*

Project #	Reach #	Reach Prot. Benefit Rank	Existing Prot. Priority (Y/N)	NTAA #	NTAA Name & Description	Fits w/Tech. Hypoth. (Y/N)	Approx. Cost	Notes, Key Uncertainties	Benefits to Chinook H, M, L	Feasib. H, M, L
	GD2				No projects are identified at this time.					